

### **Abstract of the disclosure**

[073] A system for acquiring brain activity data that includes a combined mechanical support frame and signal transmission network structure that consists of a plurality of intersecting, mechanically connected rails, each of which houses electrical signal and power distribution conductors. The conductors in the rails interconnect a variety of different functional node devices that are mechanically supported at adjustable positions on the rails. Each of the nodes houses functional components and include data nodes for acquiring brain activity data, a host node for receiving data from the data nodes and relaying information to an external device, a power node for supplying operating power to the other nodes. The position of the rails may be adjusted relative to each other, and the position of each node may adjusted on the rail upon which it is mounted. The data nodes include retractable probes which may be moved toward or away from the head to position electrodes or other sensors at precise desired locations on the head.